

***This is not the same old talk  
about idling reduction!***



***Dr. Linda Gaines  
Center for Transportation Research  
Argonne National Laboratory***

*A U.S. Department of Energy Laboratory  
Operated by The University of Chicago*



# ***Background you all know***

---

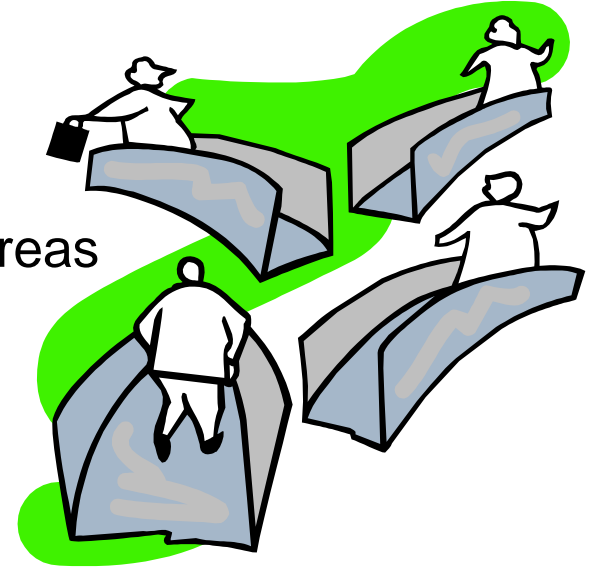
- **Trucks idle for cab comfort, to mask out noises and smells, to keep the fuel and engine warm, because the other drivers do it, and for safety**
- **Idling impacts include wasted money, excess petroleum use, air pollution, and noise**
  - ~500,000 trucks idle overnight
  - 838 million gallons of oil are wasted annually
  - 5% of heavy truck fuel
- **Many devices are available to reduce idling, including APUs, heaters, and plug-in units**
- **Many states and localities restrict idling**
- **For more details, go to**  
<http://www.transportation.anl.gov/idling.html>



# What has changed?

---

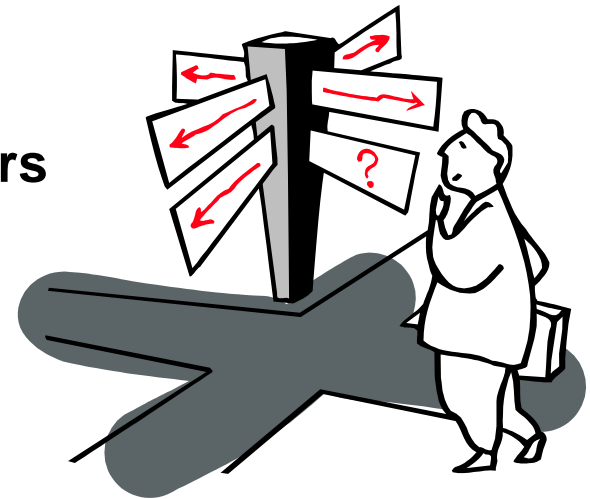
- **Technology options have changed**
  - Thermal storage is no longer available
  - Air conditioners are on the market
  - Wayside services are installed in limited areas
- **Agencies have been busy with programs**
  - DOE, EPA, NY, CA, IA
- **Legislation has been written**
  - Energy bills, state/local laws
- **Hours of service rules have changed**
  - NY reported in 2002 “25% fell asleep while driving last year.”
  - Longer rest time increases need for idle-reduction devices
- **Guidelines for SIP credits have been drafted**
- **Trade organizations have been formed**
- **BUT most trucks still idle overnight**



# ***Why hasn't idling reduction taken off?***

---

- **Regulatory picture is unsettled**
  - Will the device I buy be allowed in the future?
- **Technology choices may be confusing**
  - Different services are provided
    - Which is right for me?
    - Will service be available when/where I need it?
- **Capital is scarce**
  - Some devices are expensive
- **Owner/operators are independent**
- **There is no incentive for truck-stop owners to electrify**





# ***Why are devices being installed rapidly on locomotives?***

---

- Only 4 companies own 20,000 locomotives
- One of these manufactures its own APUs
- Limited number of equipment manufacturers
- Retrofit of locomotives common practice
- All available devices have short payback times
- Idling reduction facilitates NO<sub>x</sub> compliance
- Emission credits can be sold



# *How can we speed up the process for trucks?*

---

- Encourage a level playing field
  - Create financial incentives
  - Demonstrate technology effectiveness
  - Develop more attractive technology
  - Continue education
  - Facilitate coordination among stakeholders
- 
- **We will address each of these topics.**



# ***How can we encourage uniform regulations?***

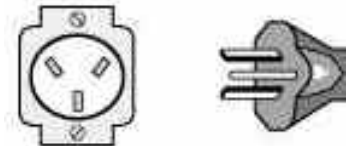
---

- **Facilitate communication among regulators**
- **Advocate national guidelines**
- **Analyze the impacts of proposed regulations**
  - Avoid regulations that categorically forbid engine use, including APU
- **Pay attention to enforcement, too**



# ***Standardization would reduce investment risk***

- **Industry can develop codes and standards**
  - TMC
  - TMA
  - Other groups
- **Government can endorse**
- **Capabilities could be specified**
- **Uncertainty about product design removed**
- **Equipment would be compatible**



Plugs are just one example of items to be standardized.



# ***What financial incentives could be created?***

---

- **Excise tax exemption for idle-reduction equipment**
- **Weight waiver**
  - 250 pounds in latest Energy Bill
- **Tax credit for equipment**
- **Fuel tax credit**
  - Some states now offer tax refund for fuel consumed when idle
  - Possible difficulty differentiating idling fuel from APU fuel
- **Low-interest loans**
- **Grants**
  - California's Carl Moyer Program
- **Leasing opportunities**
- **Emission credit trading**
  - EPA draft guidelines allow credits in SIPs



# ***Real help is needed***

---

**We received this note:**

**“As an owner of 1 truck, I am interested in reducing my idling. I would like to install an auxiliary power unit, but cannot find the funds to do this. **Does the government have a program that could help an owner-operator get the money to buy one**, like a grant or small business equipment loan?**

**I know there are a lot of people who would take advantage of anything that would help in defraying the cost, not only as a way to save money, but it would also help the environment.”**

# ***Technologies are being demonstrated***

---

- **NYSERDA has IdleAire installations on Thruway**
- **NYSERDA and EPRI demonstrating plug-in units**
- **EPA funding electrification**
- **DOE demonstrating on-board units on several fleets**



# ***Better technologies are being developed***

---

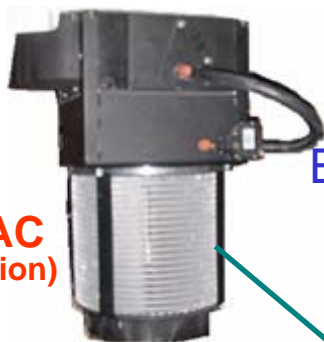
- **New technologies will be**
  - Cheaper
  - Lighter
  - Smaller
  - Durable
  - Available from OEM
- **DOE funded Caterpillar More Electric Truck**
- **DOE funds fuel cell APU**
  - UC Davis, Freightliner, *et al.*
- **DOE to fund light-weight APU**
  - Contract to be awarded soon
- **DOD needs quiet APU (fuel cell)**
  - National Automotive Center (TACOM)
  - Ballard Power Systems
  - University of Alabama





# ***DOE funded the More Electric Truck project***

Caterpillar, Inc.  
Kenworth Truck Company  
Emerson Electric Company  
Engineered Machined Products, Inc.



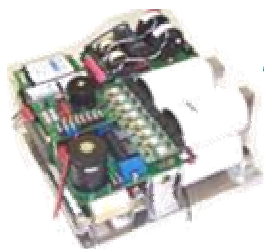
**Modular HVAC**  
(going to production)



**Starter Generator Motor**  
(to production)



**Shore Power or Inverter**  
(optional)



**APU** (optional)

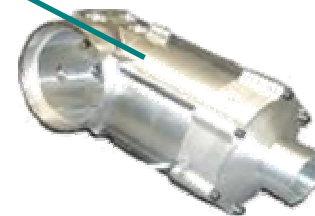
**Down converter**



**Compressed Air Module**



**Electric Oil Pump**



**Electric Water Pump**

# Education must continue

- **DOE outreach**
  - Publications
    - *Reports: ANL 2000 report being updated and expanded*
    - *Brochure*
  - Information on web (<http://www.transportation.anl.gov/idling.html> )
  - Presentations at major meetings
  - Booth at Truck Show
- **EPA**
  - Website ([www.epa.gov/otag](http://www.epa.gov/otag) )
  - SmartWay program
- **DIRP**
  - Website ([www.stopidling.org](http://www.stopidling.org))
  - Truck show booth
- **Popular press**
  - Land Line (owner-operators) (<http://www.landlinemag.com/>)
  - Fleet Owner  
([http://www.keepmedia.com/PublicationHome.do?pub\\_id=48&extID=10005](http://www.keepmedia.com/PublicationHome.do?pub_id=48&extID=10005))



# ***Spring meeting will assemble stakeholders***

---

- **ANL planning May 2004 meeting for DOE/OFCVT**
- **Co-sponsors include DOE, DOT, EPA, NYSERDA, and others**
- **All groups will be included**
  - Government at all levels
  - All affected transport modes
  - All business interests
    - *OEMs*
    - *Users*
    - *Truck stop operators*
    - *Equipment manufacturers*
  - Researchers
- **All relevant topic areas will be covered**
  - Technology
  - Research
  - Legislation and regulation
  - Economics
  - Energy and environmental impacts
- **Objective is coordinated action**



# ***Thank you's go to:***

---



- **SAE Truck and Bus Meeting**
  - November 10-12, 2003
- **Sid Diamond– DOE Office of FreedomCAR and Vehicle Technologies**
- **Disclaimer: no endorsements are implied!**
- **Contact: Linda Gaines**
  - 630/252-4919
  - [lgaines@anl.gov](mailto:lgaines@anl.gov)